

Chronic Hepatitis C

General: Hepatitis C is a common bloodborne viral infection which can cause both acute and chronic infections.

Epidemiology/Risk Factors

1. Leading cause of death from liver disease and leading cause of liver transplantation in US
2. Prevalence is 1.6% of the population
3. Risk factors: IV or intranasal drug use, blood transfusion before 1992, hemodialysis, needle stick exposure, tattoos, intercourse
4. Acute → Chronic infection occurs in 55-85%. Virus is cleared mostly by young women and children
5. USPSTF recommends against routine screening, only screen if high risk or have suspicion for the disease

Symptoms

1. Most are asymptomatic
2. Mild general sx: fatigue (most common), nausea, anorexia, weight loss, myalgia, arthralgia, weakness
3. Aminotransferases
 1. 33% have normal ALT
 2. 25% have elevated ALT 2x normal
 3. very rare to have ALT in thousands

Diagnosis

1. Screening: ELISA, highly sensitive and specific. If positive →
2. Confirmatory: PCR for Hep C RNA
3. Genotyping: 6 genotypes
 1. Type 1 (75%)
 2. Type 2 (15%)
 3. Type 3 (7%)
1. Other tests to assess liver functions: LFTs, CBC, Cr, Albumin, INR

Diagnostic Tests and Test Results in Suspected HCV Infection

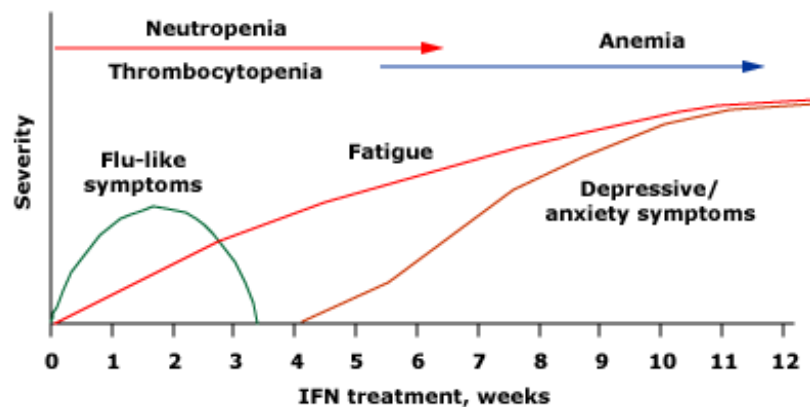
Initial anti-HCV tests	Confirmatory HCV tests		Test interpretation
Enzyme-linked immunosorbent assay*	Recombinant immunoblot assay	HCV RNA polymerase chain reaction	
Negative	—	—	No infection or very early infection (repeat polymerase chain reaction if clinical suspicion of acute HCV infection)
Positive	Positive	Positive	Current infection
Positive	Negative	Negative	False-positive antigen test
Positive	Positive	Negative	Past infection with HCV

Table 2 from Wilkins, T. Hepatitis C: Diagnosis and Treatment. American Family Physician. 2010 Jun 1;81(11):1351-1357.

Treatment

1. Who should be treated: anyone without contraindications, people without fibrosis may defer
2. **Pegylated interferon-alpha** (weekly SQ injections) + **Ribavirin** (PO BID)
3. Other:

1. Protease inhibitors as add on therapy: telaprevir and boceprevir
 1. appears to benefit treatment naive and nonresponders
1. Antiretrovirals for type 1 nonresponders
1. Duration
 1. Type 1, 4, 5, 6 - 48 weeks (dose reductions in 30-40% and early termination in 20% b/c of side effects)
 2. Type 2,3 - 24 weeks of tx
1. Monitoring treatment response
 1. Viral load with Hep C PCR at
 1. 4 wks: Rapid Virologic Response (RVR) if viral load undetectable, may shorten therapy
 2. 12 wks: to eval for Early Virologic Response (2 log reduction in viral load from baseline)
 1. if no EVR, consider d/c treatment as future response is unlikely (<3% success)
 1. 24 wks: if EVR, should have undetectable levels by this point
 2. at tx completion
 3. 24 wks after treatment completion
 1. Periodic CBC
1. Side effects
 1. PEG: influenza-like sx (1/2 of patients), psychiatric sx including depression, anxiety, insomnia (1/4 of pts, RF is sx prior to tx), bone marrow suppression, autoimmune disorders
 2. Ribavirin: hemolytic anemia, teratogen
 3. Time course to SE



- 4.
1. Contraindications: severe depression, autoimmune d/o, renal/cardiac/pulmonary transplantation, life-threatening comorbidities, pregnancy, renal insufficiency, severe cytopenia
2. Goal: sustained viral response (SVR) = undetectable Hep C RNA 6 months after completing treatment, viral load usually becomes undetectable between 4-24 weeks)
 1. 2 years of SVR = cure, 98% of people with SVR will remain so indefinitely
 2. Genotype 1: 40-50% achieve SVR
 3. Genotype 2 or 3: 75-80% achieve SVR
 4. decrease SVR or response to tx: use of ETOH, baseline Hep C RNA >600,000, African American, obesity, age >40, presence of cirrhosis or adv fibrosis

Followup

1. All patients should have Hepatitis A and B vaccines
2. Screening for HCC with yearly ultrasounds (not AFP)

3. Liver biopsy: to determine severity, stage, prognosis, may be helpful in driving decision to treat

Patient Counseling

1. Avoid sharing needles, toothbrushes, razors, or other instruments that may come into contact with blood
1. Use condoms (risk of transmission in monogamous relationships is < 0.5%)
2. 5-25% with Chronic Hep C will develop cirrhosis within 25-30 years
 1. Disease Progression accelerated by: older age, obese, NASH, immunosuppression (HIV), Hep B coinfection, >3.5 ETOH drinks/day
 2. Genotype or Viral load do not affect disease progression
 3. Of those who have cirrhosis the risk of developing HCC is 1-4% per year (1/3 of HCC is caused by cirrhosis)

Resources

1. Chopra, S. Clinical manifestations and natural history of Hepatitis C viral infection. Up To Date. Last Updated Oct 11, 2011.
2. Chung R. A Watershed Moment for Hepatitis C treatment. NEJM. 2012; 366:273-275.
3. Hepatitis C. Yale Office-based Medicine Curriculum, Seventh Edition, Volume 2, 2010.
4. Lock, A. Preliminary Study of two antiretrovirals agents for Hepatitis C Genotype 1. NEJM. 2012; 366:216-224.
5. Tai, A. Studies of telaprevir and boceprevir in the treatment of chronic hepatitis C virus genotype 1. Up To Date. Last updated Dec 23, 2011.
6. Wilkins, T. Hepatitis C: Diagnosis and Treatment. American Family Physician. 2010 Jun 1;81(11):1351-1357.